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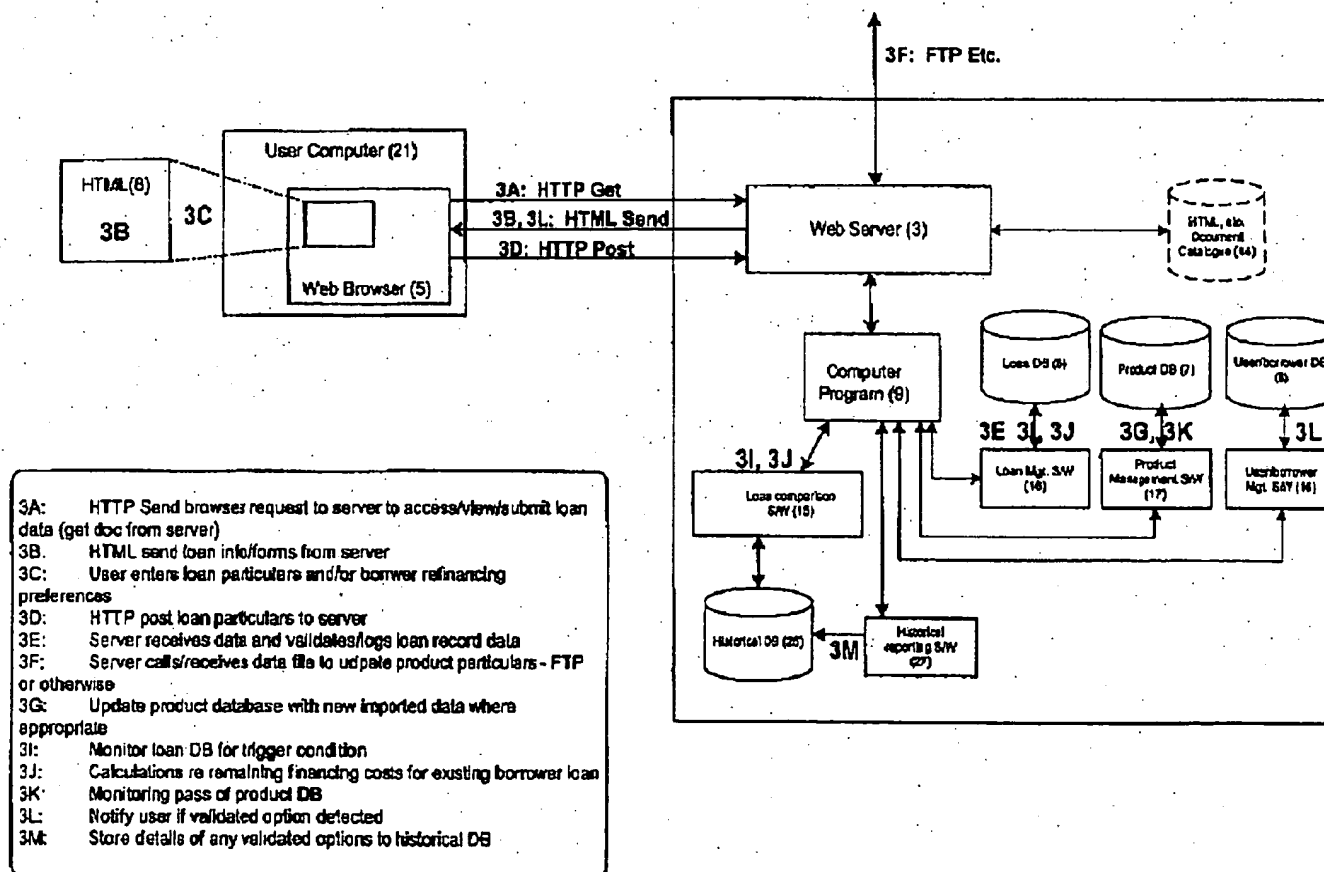
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(54) Titre : APPAREIL ET METHODE POUR REDUIRE AU MINIMUM LE COUT D'EMPRUNT

(54) Title: APPARATUS AND METHOD FOR MINIMIZING CONSUMER BORROWING COSTS



(57) Abrégé/Abstract:

There is disclosed a loan optimization system and method for advising users regarding the possibility of refinancing various loans or mortgages where financing cost savings can be realized. The system stores loan particulars of existing borrower loans in a loan database and upon detection of a trigger condition with respect to a particular borrower loan will scan a product database containing product particulars for various alternative prospective loan products available in the market and identify any

(57) **Abrégé(suite)/Abstract(continued):**

possible prospective loan products which would create savings and meet the user's requirements. Loan comparison methods of varying complexity are disclosed.

5

**ABSTRACT.**

There is disclosed a loan optimization system and method for advising users regarding the possibility of refinancing various loans or mortgages where financing cost savings can be realized. The system stores loan particulars of existing borrower loans in a loan database and upon detection of a trigger condition with respect to a particular borrower loan will scan a product database containing product particulars for various alternative prospective loan products available in the market and identify any possible prospective loan products which would create savings and meet the user's requirements. Loan comparison methods of varying complexity are disclosed.

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**APPARATUS AND METHOD FOR MINIMIZING CONSUMER BORROWING****COSTS**

This invention relates generally to the field of mortgage loans and other debt products.

- 10 More specifically the invention provides a method and apparatus which will monitor competitive debt products and advise users when financial savings could be realized by switching to competitive loan products offered by the same or different lenders.

15 **BACKGROUND**

- Most consumers and homeowners are in a mortgage or debt position with respect to one or more mortgages or other debt products. In most cases, mortgages and other loans are locked in a fixed interest rates with fixed repayment terms. Most such closed loans
- 20 contain penalties or financial costs to prepayment or early termination of the debt obligation.
-

5 Consumers try at the time of locking in a mortgage or other loan to negotiate the lowest interest or most favorable terms for their particular circumstances. In certain cases users might be solely motivated by the lowest interest rate possible, where in other cases other factors such as repayment term, prepayment penalties or other factors might be calculated into the choice of a particular debt product by a consumer.

10

One point in time where consumers will potentially consider refinancing their debt obligations or early payment or termination is at a time when interest rates are declining. When interest rates start to fall, many mortgage holders will enviously think about the attractive mortgage rate available to those performing a transaction at this specific time.

15

Only a few may consider breaking the existing mortgage contract and renegotiating a better rate. A significant number of users may not feel comfortable calling their lender without knowing up front if they will save money, or may simply be unaware of the current mortgage rates and the corresponding savings that they could realize by refinancing at a particular point in time or with a particular competitive lender or debt product.

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### **SUMMARY OF THE INVENTION**

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It is the object of the present invention to provide a method and system that can monitor the loan obligations of a borrower and advise users when there are attractive refinancing opportunities available in the market that could potentially result in a savings of financing costs.

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It is the further object of the present invention to provide a loan optimization method and system which can monitor the particulars of more than one loan of more than one borrower, and compare those existing loan particulars against the product particulars of more than one prospective loan product from more than one lender.

15

It is the further object of the present invention to provide a loan optimization system and method which can identify validated refinancing options to notify a user regarding a borrower loan of more than one loan type.

20

It is the further object of the present invention to provide such a system and method which will allow a user to specify one or more borrower refinancing preferences with respect to a borrower loan and refinancing options will only be selected as validated options if these borrower refinancing preferences are satisfied by the product particulars of that particular

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5 prospective loan product.

In one embodiment, the present invention accomplishes these objectives comprising a loan optimization system for advising users of the existence of advantageous refinancing options, each such option being a validated option, said loan optimization system comprising a server  
10 computer capable of communicating with users, said server computer containing at least: a loan database of loan records in which each loan record would contain the loan particulars of an existing borrower loan entered by a user; a product database of product records in which each product record contains the product particulars for a prospective loan product of a lender; and a software loan comparison module which was operatively connected to the loan  
15 database and the product database. The loan comparison module would detect validated options from the product database with respect to a loan record by conducting at least one monitoring pass of the product database to identify the validated option, and would then notify the user of at least one of any validated options detected.

20 It is contemplated that individual retail borrowers may wish to use the system or method of the present invention to monitor the availability of attractive refinancing options regarding their debt obligations. It is also envisioned that agents, such as mortgage brokers, banks or insurance companies or the like, may also wish to use the method or system of the present

5 invention to facilitate their work on behalf of their client borrowers.

In its simplest embodiments, the loan optimization system of the present invention would advise a user of any validated options detected with respect to of a loan record of that user in the loan database. However, the system could be further modified to either notify the user of  
10 only the most beneficial or highest ranked validated option identified, or alternatively could notify the user of more than one validated option if more than one validated option were identified with respect to a loan record in a particular monitoring pass. Where more than one validated option were communicated to the user, those options could simply be sent along to the user or could be ranked in some fashion by the system of the present invention.

15

The loan optimization system of the present invention could initiate a monitoring pass of the product database with respect to a loan record upon detection of a trigger condition. The trigger condition might be the passing of a certain preset period of time since the last monitoring pass conducted with respect to that loan record, or might be detected or  
20 calculated based upon user or borrower refinancing preferences stored within the loan database. It is particularly contemplated that the trigger condition could be calculated or related to a particular monitoring frequency, but the trigger condition could be either preset or calculated based on any one of a number of parameters on the system.

5

A monitoring pass of the product database, to identify potential validated options, would comprise at least, using the loan particulars of a loan record related to said monitoring pass, scanning the product records from the product database and using the product particulars thereof to calculate whether refinancing the remainder of the existing borrower loan from the  
10 loan record in accordance with the product particulars would result in a savings in excess of a predetermined savings threshold, in which case a validated option exists. Where a predetermined savings threshold was used by the system, the predetermined savings threshold might be preset on the system or might alternatively be a preference setting which could be made by the user with respect to a loan record.

15

The user could be allowed to store various borrower refinancing preferences on the system and likely within the structure of the loan database with respect to various borrower loans. These borrower refinancing preferences could be any one of a number of different types of parameters or conditions which the borrower wished to use to filter or limit the types of  
20 alternative loan products identified in monitoring passes of the product database. Where borrower refinancing preferences were stored with respect to a particular loan record, the loan comparison module could restrict the identification of validated options to only any refinancing option which not only would result in financial savings in excess of the

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5 threshold, but also satisfy the remainder of the borrower refinancing preferences or filter conditions set with respect to that loan record.

The borrower refinancing preferences might also include calculation adjustment factors for use by the loan comparison module to alter the standard comparison of a loan record to  
10 product records from the product database. These types of calculation adjustment factors could again be fairly broad in scale or type and might range from simple to more complex depending upon the level of sophistication of the user and their requirements.

The loan optimization system might also include a loan maintenance module, a product  
15 maintenance module and/or a historical database to store details of validated options as communicated to users along with a reporting module which could be used by users to access data from the historical database.

In the loan optimization system of the present invention, the server computer could be  
20 operatively connected to a computer network rendering it capable of communicating with at least one user computer. One particular embodiment of the loan optimization system of the present invention in which the server were operatively connected to a network enabling communication with one or more user computers would be to provide the loan optimization

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5 system of the present invention as a Web site which was able to communicate with one or more users via their client computers and user browsers.

Alternatively, in a stand-alone or off-line environment, the server computer of the system of the present invention could have a monitor, keyboard and/or other data input or output  
10 devices attached thereto and the users could use the system by presence and interaction directly with the server.

There is also disclosed a loan optimization method which can be used to advise users of the existence of advantageous refinancing options, each such option being a validated option.  
15 The method comprises the steps of obtaining loan particulars for existing borrower loans from users, obtaining product particulars for prospective loan products of lenders, and with respect to an existing borrower loan comparing the loan particulars to product particulars of prospective loan products to identify any prospective loan product which, upon refinancing of the remainder of the existing loan, would yield financial savings, said prospective loan  
20 product then being a validated option, and upon detection of any validated options notifying the user of at least one of the validated options.

With respect to the method and the system of the present invention, it is contemplated that an

5 individual borrower might be the user of the system, or alternatively a user of the system might not be the actual borrower but may in fact be an agent for one or more borrowers.

The loan optimization method disclosed could be practised manually or in a number of different ways. It is also specifically contemplated that the loan optimization method of the present invention could be practised using a server computer capable of communication with  
10 users, wherein loan particulars for existing borrower loans are stored in loan records of a loan database, product particulars for prospective loan products of lenders are stored in product records of the product database, and a software loan comparison module which engages the loans database and the product database is used to conduct a comparison of loan particulars  
15 of loan records to product records from the product database to identify any validated options and subsequently notify the user regarding same. Loan particulars maintained in accordance with this method might include borrower refinancing preferences. In that case, a refinancing option might only be qualified as a validated option if the refinancing option satisfies all of the specified borrower refinancing preferences with respect to the existing loan.

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Where a server and software loan comparison module, as described above, is used to practise the method of the present invention, the loan comparison module would identify validated options in the product database by conducting at least one monitoring pass through the

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5 product database. It will be understood that various types of database methodologies could be used to implement this and that either partial or complete passes through the product database, in accordance with the database design, are contemplated within the scope of the present invention. In any event, the monitoring pass of the product database would include at least, using the loan particulars of an existing borrower loan from a loan record, scanning  
10 product records from the product database and using the product particulars thereof to calculate whether or not refinancing the remainder of the existing borrower loan in accordance with the product particulars of the product record would result in a reduction of financing costs in excess of a predetermined savings threshold, in which case a validated option exists for notification to the user. The predetermined saving threshold could be  
15 preset, either at zero or higher, or could be set by the user with respect to each loan record.

The loan comparison module of this type of an embodiment could conduct constant monitoring passes of the product database with respect to various loan records or could alternatively conduct a monitoring pass with respect to a particular loan record upon  
20 detection of a trigger condition. The trigger condition could be some condition pre-programmed on the system, whether that be a change in the product database or a lapse of a preset period of time or the like, after which or upon occurrence of which a monitoring pass is initiated with respect to that loan record. The trigger condition could be the passage of a

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5     predetermined period of time since the last monitoring pass with respect to a loan record or  
could alternatively be specified by the user in the loan database.

Upon detection of more than one validated option with respect to an existing borrower loan,  
the borrower could be notified of only the best of those validated options or could  
10    alternatively be notified of all validated options identified, either with or without a ranking  
applied to those validated options before notification.

There is also disclosed a computer program for execution on a computer which could be used  
to practice the loan optimization method of the present invention.

15

In the method of the present invention the product database could contain product records  
pertaining to more than one prospective loan product of a single lender or alternatively more  
than one lender's prospective loan products. Similarly, the loan database could contain loan  
records pertaining to more than one existing borrower loan of a user or borrower and the loan  
20    database could also contain loan records pertaining to existing borrower loans of more than  
one user or borrower.

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5     **DESCRIPTION OF THE DRAWINGS:**

While the invention is claimed in the concluding portions hereof, preferred embodiments are provided in the accompanying detailed description which may be best understood in conjunction with the accompanying diagrams where like parts in each of the several  
10     diagrams are labeled with like numbers, and where:

Figure 1 is a general concept diagram of one embodiment of the loan optimization system as a web site;

15     Figure 2 is a flow chart demonstrating the operation of one embodiment of the loan optimization system of the present invention;

Figure 3 demonstrates the flow of a typical series of transactions through the web site;

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Figure 4 is a sample web page showing a data entry form for the loans database;

Figure 4 is a sample of a report which might be sent to a user where a particular

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5            refinancing option or options have been identified.

**DETAILED DESCRIPTION OF THE ILLUSTRATED EMBODIMENTS:**

10    To facilitate a complete understanding of the invention, the description of the preferred  
embodiments herein are arranged within the following sections:

1.    Glossary of Terms and Acronyms
2.    Overview of System Components and Operation
- 15    3.    Loan Maintenance Module
4.    Product Maintenance Module
5.    Loan Comparison Module
6.    Communications Module
7.    Examples of Loan Monitoring
- 20    8.    Conclusion

**Glossary of Terms and Acronyms**

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The following terms and acronyms are used throughout the detailed description:

*Client-Server.* A model of interaction in a distributed system in which a program at one site sends a request to a program at another site and waits for a response. The requesting  
10 program is called the "client," and the program that responds to the request is called the "server." In the context of the World Wide Web (discussed below), the client is a "Web browser" (or simply "browser"), which runs on a computer of a user; the program which responds to browser requests by serving Web pages (13) is commonly referred to as a "Web server."

15

*Internet.* A collection of interconnected (public and/or private) networks that are linked together by a set of standard protocols (such as TCP/IP and HTTP) to form a global, distributed network. (While this term is intended to refer to what is now commonly known as the Internet, it is also intended to encompass variations which may be made in  
20 the future, including changes and additions to existing standard protocols.)

*World Wide Web ("Web").* Used herein to refer generally to both a distributed collection of interlinked, user-viewable hypertext documents (commonly referred to as Web

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5 documents or Web pages) that are accessible via the Internet, and the client and server software components which provide user access to such documents using standardized Internet protocols. Currently, the primary standard protocol for allowing applications to locate and acquire Web documents is HTTP, and the Web pages (13) are encoded using HTML. However, the terms "Web" and "World Wide Web" are intended to encompass  
10 future markup languages and transport protocols which may be used in place of (or in addition to) HTML and HTTP.

*Web site.* A computer system that serves informational content over a network using the standard protocols of the World Wide Web. Typically, a Web site corresponds to a  
15 particular Internet domain name, such as abc.com," and includes the content associated with a particular organization. As used herein, the term is generally intended to encompass both the hardware/software server components that serve the informational content over the network, and the "back end" hardware/software components, including any non-standard or specialized components, that interact with the server components to  
20 perform services for Web site users.

*HTTP (Hypertext Transport Protocol).* The standard World Wide Web client-server protocol used for the exchange of information (such as HTML documents, and client

- 5 requests for such documents) between a browser and a Web server. HTTP includes a number of different types of messages which can be sent from the client to the server to request different types of server actions. There are also secure types of protocols or additions to the basic HTTP protocol used on the Internet.
- 10 "*HTML*" (*Hypertext Mark-up Language*). A standard coding convention and set of codes for attaching presentation and linking attributes to informational content within documents. During a document authoring stage, the HTML codes are embedded within the informational content of the document and when the Web document (HTML document) is subsequently transferred from a Web server to a browser, the codes are
- 15 interpreted by the browser and used to parse and display the document.

#### **Overview of Loan optimization system Components and Operation**

- 20 As has been outlined above, the system and method of the present invention lends itself particularly to delivery as a web site service via the Internet. As such the operation of the loan optimization system outlined in further detail herein will be outlined in the context of a web site. It will also be understood, however, that the loan optimization system of
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5 the present invention could also be implemented and practiced as a software on a  
standalone computer system, or in a networked version where clients or users could  
access the loan optimization system and communicate with the loan optimization system  
in some fashion other than via the Internet. It will even be understood that the loan  
optimization method of the present invention could be practised in a manual or semi-  
10 manual form without departing from the scope of the claims and are all contemplated as  
well within the scope hereof.

Figures 1 and 2 illustrate the general architecture of a Web site version of the loan  
15 optimization system (1) of the present invention. It includes at least one user computer (21)  
and a Web site (2), which are linked together by the Internet (4). In Figure 1 there are three  
user computers (21) shown, but it will be understood that the number of user computers (21)  
which could be connected to the present system are limited only by the communications or  
hardware capacity of the Web site (2) and the Internet or network (4) and that all such  
20 numbers are contemplated within the scope of the present invention.

The Web site (2) of the present invention consists, hardware wise, primarily of a server (3)  
with the necessary computer programs (9) installed therein to conduct the method of the

5 present invention. Further attributes and requirements of the server (3) and the computer program (9) installed therein will become apparent from the description to follow.

The server (3) of the present invention could be any typical processing unit which might include a CPU which performs the processing functions of the server (3) and also comprises  
10 a memory system. The memory system might include a ROM, RAM and disk or other storage space. The server (3) is referred to herein means a combination of any hardware memory and storage devices used to retain data within the server (3).

The server (3) is capable of communicating with users. Typically, a server (3) such as that of  
15 the present invention would include one or more communication ports which would be used to communicate with devices outside of the server (3). The ports might be modems, network connections or some other method or apparatus allowing for the transmission and receipt of data to and from the server (3) by or from external devices. The demonstrated embodiments show communications taking place between the server (3) and the user computers (21) and  
20 browsers (5) by way of the Internet (4) or another network connection. However, it will be understood that other methods of communication could be used instead of a network connection, including hardwire connections, radio communications, optical communications and the like, and it will be understood that all are contemplated within the scope of the

5 present invention.

The server (3) of the present invention, where the overall loan optimization system (1) is a Web site, could also have the necessary web server components built into it. It is in this context that the server (3) will be referred to with respect to the remainder of the Web site  
10 embodiments of the present invention. It will be understood, however, that an embodiment of the loan optimization system or method of the present invention which was not a Web site, but was either some type of an off-line or unnetworked version of the loan optimization system of the present invention, the server (3) might not have the Web server components built into it and would simply be a server (3) with the remainder of the necessary hardware  
15 and software requirements in accordance with the present invention to deliver the method of the present invention in that off-line fashion.

A user computer (21) might be any type of a computing device that would allow a user/customer to interactively browse Web sites via a Web browser (5). For example, the  
20 user computer (21) might be a personal computer. It will be understood that other types of computing devices could also be used so long as they were able to accommodate interaction with the server (3), and that all such other devices are also contemplated within the scope of the present invention. It is particularly contemplated that in practicing the method of the

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5 present invention as a web site, the user computers (21) might also be wireless devices.

The server (3) would include a loan database (6) in which would be stored the particulars of various existing borrower loans for users. The server (3) would also include a product database (7) in which could be stored the particulars of various prospective loan products  
10 offered by lenders. While the figures herein depict separate loan databases (6) and product databases (7), it will also be understood that a single database incorporating both of these functions could also be used and that such modifications to the software components of the server (3) are contemplated within the scope of the present invention as well.

15 In operation, a user would access the Web site (2) by using a standard Web browser (5), such as Internet Explorer™ or Netscape Navigator™. A Web server (3) acts as a local store of documents (14) (in the form of HTML or "Web" documents) which can be requested, retrieved and viewed by the user via the Web browser (5). Through the browser (5) and the associated Web server (3), a user would be able to upload loan particulars into the loan  
20 database (6) for monitoring by the loan optimization system, view or edit existing loan particulars, or obtain reporting on identified refinancing options. Certain documents in the catalogue (14) might be query templates, which will extract certain information from the loan database (6) for display to a user via their Web browser (5), for viewing or updating

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5 purposes. The computer program (9) of the Web site (2) would also use the information from the loan database (6) in monitoring of existing loans and prospective loan products to identify refinancing or savings opportunities.

A user would need to provide identifying information to the Web site (2) along with other  
10 particulars of an existing borrower loan in order that the loan record related to that particular existing borrower loan can be properly catalogued and attributed back to the appropriate user at the time of notification of a potential savings or refinancing opportunity. In one implementation of the Web site (2), the Web site (2) might also include a user database which contains details of registered users – the contents of such a user database could vary  
15 depending on the level of functionality desired on the site but it will be understood that at a minimum it would be desirable to have fields in such a user database (8) to store notification details, in terms of addresses or identifying communication methods by which users can be notified of refinancing options within their established parameters. Deployment of a user database will also simplify the process of monitoring more than one loan for a user, as will  
20 be understood by one familiar with relational database design. The user database might be managed by a user maintenance module of the computer program (9). A user database (8) and user maintenance module (16) are shown in the embodiment of Figure 3.

5 Since the identity of a user is required in order to display proper information updates, or  
allow for modification or deletion of loan records (11) from the loan database (6) by a  
registered user, the user would either need to identify themselves in their access request  
transmitted from their browser (5), or else the Web site (2) might utilize cookie technology to  
allow the user to identify themselves from their computer at one point and a cookie would  
10 then be stored on the user computer (21) which could be retrieved from the user computer  
(21) in a subsequent browsing session. Again, the use of cookies or alternative identification  
measures will be understood to be interchangeably useful in this scenario by one skilled in  
the art and all such modifications are contemplated within the scope of the present invention.

15 A possible refinancing option with respect to a particular existing borrower loan profiled in  
the loan database is what is termed herein as a "validated option". What constitutes a  
validated option or an option worthy of user notification will be further outlined below. In  
any event, upon the detection of a validated option, the computer program (9) would notify  
the relevant user of the validated option and/or its particulars. This notification could take  
20 place in accordance with notification details stored either in the loan database (6) or in the  
user database (8), in an embodiment where a user database (8) was used.

Also shown in Figure 2 as other components in the operation of a basic embodiment of the

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5 Web site (2) of the present invention are Web documents (14) such as interactive data forms and the like displayed within the Web browser (5) window of the user computer (21). Also demonstrated, and as will be described in further detail below, are the loan maintenance module (15), the product maintenance module (17) and the loan comparison module (22), all of which are modules or components of the computer program (9) within the memory of the  
10 server (3) which are used to conduct the loan optimization method of the present invention.

The following sections outline in more detail some of the various embodiments or functions, which might be used in conjunction with the present invention.

15

#### **Loan Maintenance Module**

The loan optimization system of the present invention will be particularly suited to use in the residential mortgage market, but could be used to monitor any type of debt or financing  
20 instrument, upon the storage of the proper parameters and information in the loan optimization system regarding competitive products and/or possible attendant modifications to the calculation and monitoring functions of the loan optimization system of the present invention.

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The server (3) includes a computer program (9) which, through various software components or modules, would carry out the administration and operation of the loan optimization system of the present invention. One aspect of the computer program (9) could be a loan maintenance module (16) which would be responsible for the upkeep of loan records in the  
10 loan database (6).

Each loan record could correspond to an existing borrower loan or debt obligation of a borrower which it was desired to monitor for refinancing opportunities. The loan database (6) would be stored in the memory of the server (3) and the loan maintenance module (16)  
15 could be any software module capable of accessing and administering this database (6). It will be understood that the precise structure of the loan database (6) could be any type of data structure which could be administered by the chosen loan maintenance module (16) and that all types of data structures are contemplated within the scope of the present invention.

20 It will be understood that the loan database (6) will contain the particulars of one or more existing borrower loans for one or more users. The refinancing preferences of a borrower with respect to a particular existing loan could also be stored in the loan database (6) for use in the monitoring and selection of validated options from the product database (7).

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Figure 4 is a sample web page (13) demonstrating a data entry form for entry or modification of the loan particulars of an existing borrower loan and borrower refinancing preferences for a particular loan record in the loans database (6). The depth and flexibility of the monitoring and calculations possible under the loan optimization system of the present invention, as well as some of the other options available to a user with respect to the monitoring of a particular existing borrower loan, are demonstrated by the types of data collected by this sample page. Firstly, it will be noted that in this particular form (13) there are no specific user identification fields provided for the user to identify themselves and/or provide any particulars regarding method of communication preferred by the user with respect to notification of any validated options. It can be assumed in this case that the web site (2) would collect the user information such as name, address and/or preferred communication particulars on a separate form, either for storage in the loan record of the loans database (6) with respect to this particular existing borrower loan, or alternatively for storage in a user database as outlined above, and then the user database could be linked to the loan record in the loans database (6). This would likely be the preferred design methodology for the database structure of the present invention where it was desired to potentially offer the ability to track or monitor more than one existing borrower loan for a single user, as the size and query speed of the database structure as a whole can be optimized in this fashion.

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In any event, the types of information collected on the web page (13) include the following particulars and preferences. There is first a section on the form entitled "Preferences" which allows the user in this case to set borrower refinancing preferences (19). The two borrower refinancing preferences which are provided in this particular case are a monitoring frequency  
10 field and a minimum savings field. It can be seen that the monitoring frequency field is a drop-down menu, with a current setting of "Day". It will be understood that other settings ranging from real time notification as any changes are made to the product database (7) all of the way through to hourly, daily, weekly, monthly or some other periodic type of monitoring be provided. This monitoring frequency field or data could be used by the loan comparison  
15 module (22) in the identification or detection of a trigger condition. A trigger condition is a system condition or detection of a condition by the loan optimization system which causes the loan comparison module (22) to start a monitoring pass through the product database (7) to identify any validated options with respect to a particular loan record.

20 The minimum savings field provided is the predetermined savings threshold (20) setting reflected in the remainder of this disclosure, above which a particular refinancing option would become a validated option and below which they would not. Other types of borrower refinancing preferences (19) might include loan term or the like could all be specified and

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- 5 applied to any identified refinancing options to only notify the user of any options satisfying their preferences.

The next section of the form (13) demonstrates the type of loan particulars which could be collected to most accurately calculate the remaining financing costs for an existing borrower

10 loan. All of these loan particulars again could be stored in a loan record for use in identifying viable refinancing options for the user. Shown in the section entitled "Mortgage" is a field in which an identifier or name of the loan could be entered by the user, as well as other descriptive information including the name of the lender. In this particular embodiment of the data entry form (13) for the loans database (6), both basic and advanced

15 loan particulars are shown. It is contemplated that a basic data threshold with respect to an existing borrower loan, from which relatively accurate forecasting and monitoring can be conducted, includes the amortization period of the loan, the annual interest rate of the loan, the principal and payment amounts as well as the first payment, payment schedule and loan term. The second set of fields in that section labelled with an "\*", being more advanced loan

20 particulars, include a loan type identifier, the compounding method for interest calculation, the number of days calculated per year as well as cash-back discounts provided by the lender at the time of entry of that loan. These advanced fields could be defaulted as they are in this case, or a user could amend those fields depending on their comfort level with the loan

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5 optimization system as well as the depth or type of monitoring functionality desired by the user with respect to the existing user loan. Other loan particulars shown on the form (13) include prepayment penalties with respect to the existing user loan which prepayment penalties would be calculated into the net savings when monitoring the product database for validated opportunities.

10

Another particular borrower refinancing preference (19) which it is contemplated could be added to a loan record in the loans database (6) would be some type of a field in which the user could indicate a future forecast regarding interest rates or other particulars on their type of loan. That type of a particular parameter, being a calculation adjustment factor, could be used in varying the scoring process conducted by the loan optimization system to, for example, take a closer look at or otherwise lower the validation threshold where it was thought by the user that the economy could significantly improve in the next period of time and as such interest rates would likely increase. At that point in time, users may be more inclined to carefully consider whether or not to refinance before interest rates increase. The converse of this, of course, would be that if it was forecast by the user or the loan optimization system that the economy could enter a downturn within the next short period of time, the identification threshold for refinancing options might optionally be raised to some extent since it would be possible that there would be a decline in overall interest rates

20

5 occasioned by the coming economic downturn. It will be understood that various other types  
of calculation adjustment factors could also be included in the loan records of the loan  
database (6), including projected interest rate reductions or negotiations or other discounts, or  
other calculation adjustment factors which could be used by the loan comparison module  
(22) in the comparison of product records to the loan particulars of an existing borrower loan  
10 and that all such calculation adjustment factors are contemplated within the scope of the  
present invention.

It will be understood that the form (13) or whatever other type of data entry modules were  
provided through or in conjunction with the loan maintenance module (15) could allow for  
15 virtually any types of data entry fields or functionality to be provided on the Web page or  
pages used to allow for user data entry and that any such technical integration resulting in the  
end object of allowing a user to access, view or edit loan records in the loans database (6) are  
contemplated within the scope hereof.

20

#### **Product Maintenance Module**

The second set of data required to be maintained within the loan optimization system of the

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5 present invention, are the product particulars of prospective loans from various lenders. Product particulars including terms, interest rates and the like with respect to various types of prospective loan products, could be included. For example, home mortgages, residential mortgages of open or closed terms and at fixed or open interest rates, could be maintained on the loan optimization system in a product database along with various types of car loans, 10 general loans or lines of credit and any other type of loan or debt instrument offered by a lender which could be properly codified into the data structure of the product database with the necessary attendant changes or modifications to the loans database as well to monitor these types of instruments using the loan optimization system of the present invention. In the case where product records in the product database (7) were for loans of different types, it 15 will be understood that the identification of the loan type in the particular product record could be used along with the employment of a loan type identifier with respect to various loan records in the loan database (6) to compare only compatible product records in the product database (7) with a particular existing borrower loan during a monitoring pass of the product database (7). It will be understood that the use of the system of the present invention 20 to monitor and advise users with respect to a single type of loan or loan product, as well as the ability to monitor or advise with respect to various multiple types of loan products, are contemplated within the scope of the present invention.

5 It will be understood that all many types of product particulars could be contained within individual product records in the product database (7) and, again, as the number or type of product particulars increased in complexity, the flexibility of the loan optimization system would be improved. It will be understood that the product database (7) could contain the product particulars for one or more different type of prospective loan products offered by one  
10 or more lenders.

Another product particular which it may be desirable to track would be some type of a subjective rating system or other information about lenders which could be used to allow users to set further borrower refinancing preferences (19) to filter product records from the  
15 product database (7) in the selection of validated options. For example, if some type of a rating was retained with respect to various lenders, the user could specify that they only wanted to consider prospective loan products offering financing savings from lenders with "a three-star rating or better" or the like. It will be understood that all such variations are contemplated within the scope of the present invention.

20 It will be understood that the precise structure of the database (7) could be any type of database structure which could be administered by the chosen product maintenance module (17) and all types of data structures are contemplated within the scope of the present

5 invention. One skilled in the art of database design would be able to come up with numerous types of data structures or file formats and, as outlined above, it will be understood that all such data formats and structures which accomplish the objective of making the loans database (6) and product database (7) accessible to the other modules of the computer program (9) are contemplated within the scope hereof.

10

The program (9) would include a product maintenance module (17) for the upkeep and access or passing of information from the various product records in the product database (7) to other modules of the computer program (9). The product database (7) would be stored in the memory of the server (3) and the product maintenance module (17) could be any software  
15 module capable of accessing and administering this database (7). One main function of the product maintenance module (17) could be to generate any updates to product records in the product database (7) as a result of changes to product particulars by lenders. It will be understood that the product maintenance module (17) could allow for updating of the product database (7) in various ways, including in a basic implementation allowing an operator of the  
20 web site (2) of the present invention to access particular product records by way of a form front-end or the like, similar to that of Figure 4 demonstrated with respect to the loans database (6).

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5 The preferred method of updating the product database (7) would be by way of some type of an automated batch routine. This would involve the identification of one or more sources of product and these types of updates could be simply periodically run. Spidering technology or FTP pulls from other Web sites or servers are two particular types of data acquisition to keep the product database (7) up to date which are particularly contemplated within the scope  
10 hereof, although again it will be understood that any number of different types of background or batch automation tasks could be used to automatically update the product database (7) and all such methods are contemplated within the scope hereof. It will also be understood that lenders might even wish to update their own information and that such an update process could also be accommodated by the product maintenance module (17).

15 One final major function of the product maintenance module (17) could be to, in some fashion, flag for the use of the loan comparison module (22) the dates or times of last changes or updates of particular product records, to streamline to the largest extent possible the monitoring of various alternative products available in the product database (7) when  
20 monitoring the product database (7) with respect to individual loan records.

### **Communications Module**

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A communications module, within the context of the server (3) and the program (9), could be any combination of software tools and hardware modules required to allow the computer program (9) and the server (3) to communicate with users or lenders either via the Internet (4) or other network or connection alternatives. It will be understood that all such communication methods and tools are contemplated within the scope of the present invention.

It is particularly contemplated that an electronic mail alert system could be used with great simplicity, and e-mail is widely accessible by most users who would use the loan optimization system anyhow. It will however be understood that various other types of notification could also be used, as wide ranging as paging, faxing, telephone calls or sending an alert to a staff person to make a physical phone call to the user and that all such means of notification are contemplated within the scope of the present invention.

20 Users might access the loan optimization system in various ways. For example, in a manual embodiment of the business method of the present invention, where an operator was manually or in an off-line electronic fashion comparing the details of various existing borrower loans to the alternative borrowing options available in the market to identify any

5     validated options for the user, the user might simply communicate verbally with the  
operator in accordance with the method. Other off-line communication methods such as  
mail or the like could be used, or the user could communicate with the operator by  
electronic mail or the like. In an embodiment of the present invention where the loan  
optimization system involved computer software operating in an 'off-line' environment,  
10     i.e. on a stand-alone machine or on a local area network not connected to the internet, a  
user could access the loan optimization system by physically attending at the location of  
the loan optimization system and entering their necessary information onto the machine,  
or alternatively the loan optimization system could even be rigged with some type of a  
telephony interface whereby the user or lender could update their respective information  
15     in the loan or product databases through some type of an automated telephone interface  
loan optimization system.

A user could access the web site (2) through a browser (5). The server (3) in this client-  
server model can not only transmit loan monitoring results to the user via the browser (5)  
20     but can also be configured to receive data from the user such as in the setup or  
modification of loan records through the browser interface and communications between  
client and server. It is also specifically contemplated that the web site (2) of the present  
invention could be configured to interface with wireless client devices of users. It will be

5 understood that the loan optimization system could also be configured to communicate back to users regarding validated options in just as many ways as outlined above in terms of offering data entry or upload access to the loan database or the remainder of the loan optimization system, and that all such methods of communication between users and the loan optimization system of the present invention, and lenders and the loan optimization  
10 system of the present invention, are contemplated.

### **Loan Comparison Module**

15 Figure 3 demonstrates the transaction flow in one embodiment of the Web site (3) of the present invention. Figure 3 shows a loan database (6), a product database (7) and a user database (8), each with their own management modules (15), (16) and (17) respectively.

A user could from their browser (5) on a user computer (21), initiate a browser request,  
20 shown at 3A, which would be transmitted from the browser (5) to the web server (3). Within this browsing session, various information could be served to the browser (5) by the server (3) from the document catalogue (14). The first specific function, however, could be to allow a user wishing to register an existing loan for monitoring by the loan

5 optimization system of the present invention. A data entry form (13) such as that shown in Figure 4 could in this case be transmitted back from the document catalogue (14) to the browser (5) for display to the user, as shown at Step 3B. As outlined in further detail in the section above pertaining to the loan database (6) itself, user particulars and/or communication particulars specifying the method by which the user would like to be  
10 contacted upon detection of a validated option (18), could be stored in a separate user database (8) or alternatively might also be stored in the loan database (6).

The user would fill in some or all of the options or parameters included in the form or forms transmitted at Step 3B for display in the browser (5). The editing of this  
15 information is shown at Step 3C. The particulars entered at Step 3C along with whatever other identifying information was necessary would be sent from the browser (5) back to the server (3) at Step 3D.

The next step (3E) in the process is the server (3) receiving the data posted from the  
20 browser (5). The loan data which is received in this fashion is processed by the various modules of the computer program (9) and logged into, in this case, a loan record in the loan database (6). Upon receipt of such data from a user, the server (3) and the computer program (9), specifically via the loan administration module (15), would see to the proper

5 logging of that data into the loans database (6), either by creation of a new loan record or by modifying an existing loan record. This might also include transmission of a confirmation of receipt of the data back from the server (3) to the browser (5).

Submissions to the loan database (6) resulting in the creation or editing of loan records in the loan database (6) could take place at any time that the server (3) of the system (2) was  
10 available for access or browsing by one or more user browsers (5).

The product maintenance module (17) is the software module resident within the server (3) which is tasked with the maintenance of the product records in the product database (7), specifically as new prospective loan products are desired to be added to the loan  
15 optimization system, the product maintenance module (17) would be required to create a new product record in the product database (7) containing product particulars with respect to that particular loan product to allow the loan comparison modules (22) to perform its monitoring and comparison functions. Shown at Step 3F is the import of a data file containing the necessary information with respect to alternative lender loan products  
20 available on the market. Step 3G shown in this figure is to parse the data-file into a file which can be loaded into a format which can be loaded directly into the product database (7). The product management module (16) would then update the product database (7) and its individual product records based on the contents of this file. For products which

5 already had a product record in the product database (7), any product particulars which had changed in the imported data file would be updated. Alternatively, where the data file contains product particulars of new loan products which have not yet been established in the product database (7), the product maintenance module (17) could create a new product record for each of those particular loan products and store all of the necessary  
10 product particulars to allow the loan optimization system to perform its various functions. Updating of the product database (7) by the product maintenance module (17) might be done on a scheduled basis or, alternatively, might also be done in real time where either operators of the loan optimization system (2) or lenders who have loan products within the product database (7) could post updates to their product records at their leisure. Upon  
15 entry of a new loan product into the product database (7) or upon changing of the details of product records in product database (7), the newer information stored in the product database (7) would be used by the loan comparison module (22) in future monitoring passes.

20 At the heart of the web site (2) of the present invention is the loan monitoring function which is carried out by a loan comparison module (22). In the embodiments shown, the loan comparison module (22) will interface directly or indirectly with the loan and product databases (6) and (7) respectively, for the purposes of identifying and validating

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5 refinancing options and communicating with the user in the case of identification of a validated option. It will be understood that there would be many types of software capable of conducting the required functions of the loan comparison module (22). It is specifically contemplated that this module (22) would comprise a series of queries or templates designed to access the relevant data from the product database (7) and the loans  
10 database (6) for the purposes of identifying validated refinancing options and notifying users regarding same.

The loan comparison module (22) of the present invention could monitor all of the loan records in the loans database (6) against the product database (7) in an ongoing real time  
15 basis as changes are made to any product records in the product database (7), or alternatively on a preset or calculated periodic basis. The first function carried out by the loan comparison module (22) would be to monitor the loans database (6) for the occurrence of a trigger condition with respect to a loan record which would trigger a monitoring pass (24) through the product database (7) with respect to that particular loan  
20 record. The trigger condition could be the passage of a certain period of time since the last monitoring pass (24). It will be understood that any number of different types of trigger conditions (23) could be contemplated and all such trigger conditions (23) are contemplated within the scope of the present invention. The monitoring of trigger

5 conditions (23) with respect to individual loan records is shown at Stage 3I in Figure 3.

Upon detection of a trigger condition with respect to a particular loan record in the loans database (6), the loan comparison module (22) would next perform the comparison between the particulars of the existing borrower loan outlined in that loan record against  
10 product records from the product database (7). This is referred to as a monitoring pass (24) of the product database (7). The loan comparison module (22) would first calculate the remaining financing costs on the existing borrower loan based on the loan particulars stored in the loan record, along with any prepayment penalties or other financial costs associated with the early payout or termination of the existing loan outlined in the loan  
15 record. Calculation of the pertinent financial data pertaining to the existing borrower loan specified in the loan record is shown at Step 3J in Figure 3.

The loan comparison module (22) would then calculate the total financing costs to the user of refinancing the remainder of the existing borrower loan spelled out in the loan  
20 record in accordance with the product particulars of the prospective loan product identified in a product record. This calculation would be rendered with respect to each selected product record. The calculation would likely include the use of remaining principal and other data from the loan record along with any preferences or defaults that

5 the user had set with respect to that loan record. Any calculation adjustment factors would also be applied. If the total calculated refinancing costs to the user of entering into the new loan in accordance with the product particulars of the product record, including prepayment or termination penalties with respect to the existing borrower loan, will be exceeded by the remaining financing costs for the existing loan by a predetermined  
10 savings threshold (20), and the other borrower refinancing preferences (19) with respect to the particular loan record in question were satisfied, the particular product record would be identified as a "validated option" to be communicated to the user.

Regardless of which routine is used to identify any validated options for the user, it will  
15 be understood that once a validated option has been identified by the loan optimization system the loan comparison module (22) would notify the user with respect to at least one identified validated option via the communications module (26). As outlined above under the heading of "Communications Module", it is particularly contemplated that this type of notification could be generated using electronic mail, although it will be  
20 understood that any number of different types of communications could be used without departing from the intent and scope of the claimed invention. Figure 5 shows one type of a report which could be generated and sent to a user upon identification of validated options from the product database in the course of a monitoring pass.

5

The loan optimization system (21) might optionally, in addition to notification of validated options, also save the particulars of the validated options in another table of the database on the loan optimization system or otherwise retain that historical information so that the user could subsequently access further details of those validated options through a reporting system made available on the web site (2). A historical database (25) is shown in the system of Figure 3. The user could access further particulars of the calculations performed by the loan optimization system or any other information contained in the historical database (25) through the web site (2) simply by accessing a reporting module or alternatively data templates from the catalogue (14).

15

It will be understood that calculations and comparisons conducted by the loan comparison module (22) could be as simple or as complex as the queries or formulae programmed therein. For example, beyond basic calculations of refinancing versus remaining financing costs, the calculations could also be enhanced to do one or more of the following things:

20

- a) compensate with a time value of money using net present value techniques;

- 5        b)        give end users more control over the assumptions used in the calculations; and
- c)        ultimately allow lenders to provide to the operators of the loan optimization  
                     system of the present invention their own official formula for the most  
                     accurate estimates possible.

10

It will be understood that all such enhancements are contemplated within the scope of the present invention as well.

15        **Examples of Validated Option Identification**

The following is intended to illustrate with direct reference to specific sample data the operation of the loan optimization system of the present invention. Table A below illustrates some sample data which could be retained in a loan database (6) with respect to

20        user loans.

**Table A: Sample Loan Database data:**

Record	Borrower	Loan	Borrower refinancing	Remaining	Interest		Remaining Financing
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Number	ID	Type Identifier	preferences	Principal	rate	Penalties	Costs
1	1	Mortgage	No cash back	100000	8.5	7500	42000
2	1	Mortgage	Target .5% negotiated discount from rates	28500	5.7	3000	5600
3	1	Car loan	2 yr term Monitor daily	17000	5.0	0	3800
4	2	Car loan	None specified	12000	11.0	1200	4000
5	3	Mortgage	10 yr closed preferred	128000	8.0	10000	70000

5

The above captioned table has five sample records in one embodiment of the loan database (6) of the present invention. Reference to this sample data can be made to demonstrate a number of the flexibilities or concepts of the present invention. Firstly, the sample data shows that more than one existing borrower loan for a particular borrower can be maintained in the loan database (6). In this particular case, loan records 1, 2 and 3 are all linked to the same Borrower ID, namely Borrower ID No. 1, as is shown in the sample data table. As in the case of the embodiments demonstrated elsewhere herein, the user ID would simply be a key to relate the particular loan records (11) to the user database (8) for the purposes of further identification of the user. As has been outlined above, the loan database (6) could alternatively contain all of the identification and communication particulars with respect to each loan record of the database (6), rather

15

5    than requiring a link to a separate user table (8), but it will be understood that this is all contemplated within the scope of the present invention.

As can be seen with respect to the loan records (11) for Borrower ID No. 1, there are two mortgages and a car loan listed for that user. The Loan Type Identifier is used to select  
10   compatible product records from the product database (7) and the comparison process conducted by the loan comparison module (22). For example, upon detection of a trigger condition with respect to a particular loan record related to a mortgage, the only product records from the product database (7) which would be considered in the final comparison would be those product records which were related to mortgages offered by lenders rather  
15   than anything for a car loan or other type of loan.

Shown next in the table is a column entitled "Borrower Refinancing Preferences". It will be understood that these types of preferences would likely be structured in a different fashion in the actual data structure of the loan database (6). For example, it can be seen  
20   with respect to Loan Record No. 1 that the user has specified they would not refinance this mortgage with any product from the product database (7) which had a cash back in place. With respect to Loan Record No. 2, the user has specified that they are fairly confident that they can obtain a 0.5% discount through negotiation with a lender from

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5 posted rates and that the 0.5% should be calculated in by the loan comparison module  
(22), this is a calculation adjustment factor. Finally, with respect to the car loan specified  
in Loan Record No. 3, the user has indicated that they are only interested in a car loan  
refinancing if the loan is for a two-year term. It can also be seen from other records in the  
data table, ie. Loan Record No. 4, that it may be the case that the user would specify no  
10 borrower refinancing preferences and would simply allow the loan comparison module  
(22) to perform its functions on an unaltered basis. Also shown in this column, with  
respect to Record No. 3, is a specified preference for daily monitoring, this is a  
monitoring frequency setting. The modules of the loan optimization system (1) would be  
configured to detect a trigger condition with respect to this particular loan record on a  
15 daily basis. In the case of the other records which do not specify a monitoring frequency,  
the loan optimization system could either be set to monitor those records in real time, ie.  
generating a trigger condition for each record in the loan database (6) upon any relevant  
change being made in the product database (7), or alternatively the system could be set to  
have a default monitoring frequency or trigger condition in place, for example where it  
20 might be set to monitor each loan record in the loan database (6) twice per week, once per  
month, or whatever default time frame might be established, and the loan optimization  
system (1) would then with respect to any record be governed by the default trigger  
condition, generate or detect a trigger condition with respect to each loan record on the

5 specified default frequency.

Shown next in Table A are a limited number of loan particulars which are included here solely for the purpose of illustration. It will be understood that the actual information maintained in the loan database (6), whilst it would render these types of calculations  
10 possible, would likely be far more detailed and again in a much different data structure. In any event, as is illustrated by Loan Record No. 1, there is a remaining principal calculated on this particular mortgage of \$100,000.00 and the mortgage is currently locked in at an interest rate of 8.5%. Prepayment penalties of \$7,500.00 have been entered on the loan optimization system and the remaining financing costs for this  
15 mortgage as calculated by the loan optimization system are \$42,000.00. Again, to stress the point, these numbers are likely the results of calculations based on other loan particulars stored in the loan database (6) with respect to each loan record, since these numbers would roll or change over time, but the sample data is listed here solely for the purpose of allowing us to demonstrate the type of comparison operations which will be  
20 conducted by the loan optimization system (1) of the present invention.

Table B below demonstrates a small sample set of data which might be contained in the product database (7) of an embodiment of the present invention.

5

Table B: Sample Product Database data:

Record Number	Loan Type	Lender Name	Term	Interest Rate	Incentives
1	Mortgage	Bank A	5 YR	5.0	
2	Mortgage	Bank A	5 YR	7.5	2.0% cash back
3	Mortgage	Bank A	10 YR	9.0	
4	Car loan	Bank A	3 YR	7.25	
5	Mortgage	Bank B	5 YR	7.25	3000 cash back
6	Mortgage	Bank C	5 YR	7.75	
7	Car loan	Bank C	2 YR	7.0	

Table B above demonstrates samples of product database (7) data which can be used to illustrate the operation of the present invention. Specifically, the first aspect of the present invention demonstrated by the sample data in Table B is that more than one type of loan product for a single lender can be contained with the product database (7). Specifically, Loan Records 1, 2, 3 and 4 represent three mortgages and a car loan product offered by Bank A, while there is a single mortgage product offered by Bank B contained in Product Record 5. Finally, there are two loan products, namely one mortgage and a car loan, for Bank C shown in Records 6 and 7. With respect to each of those product records in the product database (7) it is also seen that one of the first particulars of the new loan product contained within that particular product record is the type of loan in question. For example, in this case there are mortgages and car loans shown. It will be

5 understood that other types of loan products could also be tracked within the database with or without any attendant modification to the various data structures. As outlined with respect to the loan records in the loan database (6) sample data of Table A, this type of a loan type identifier is required when more than one type of loan product is to be maintained within the product database (7) so that the loan comparison module (22) will

10 only compare existing mortgage loans with prospective mortgages loans and existing car loans with prospective car loans, for example. Also shown in the sample data of Table B are some further particulars of the various loan products with respect to each product record. For example, Record No. 1 pertains to a mortgage loan offered by Bank A with a five-year term and an interest rate of 5%. The second record pertains to a mortgage loan

15 offered by Bank A, again at a five-year term, at an interest rate of 7.5% with a 2.0% cash back in effect. The third record for Bank A is another mortgage loan with a closed ten-year term at a 9% interest rate. And finally with respect to Bank A, Product Record No. 4 shows a car loan for a three-year term at a rate of 7.25%. The remainder of the records in the sample data Table B will be self-explanatory along the same lines. As is the case with

20 the sample data of Table A above, it will be understood that with respect to the sample data shown in Table B, some of the information contained therein may be calculated rather than specific particulars obtained from lending institutions, but this is the type of information in any event that will be used in the calculations or comparisons conducted

5 by the loan comparison module (22).

In any event, based on the sample data in Tables A and B, the following is a description of how the loan comparison module (22) and the loan optimization system (1) could potentially perform their loan monitoring functions on the sample data of these tables.

10 The concept of monitoring frequency and the detection of a trigger condition by the loan optimization system (1) was discussed in further detail above. For the sake of illustration, suffice it to say, there is default monitoring frequency of weekly in place on the loan optimization system (1) absent client instructions to the contrary. As such, all of the loan records (11) shown in Table A would be monitored against product offerings in the  
15 product database (7) on a weekly basis, with the exception of Loan Record No. 3 which had a specified daily monitoring frequency. The loan database (6) would likely contain a field which would track the last time that a monitoring pass through the product database (7) was conducted with respect to that particular record and the loan comparison module (22) and the loan optimization system (1) could then use that field of data to detect a  
20 trigger condition with respect to one or more records (12) in the product database (7).

The trigger condition in the case of triggering monitoring passes based solely on a monitoring frequency variable would be detected or would exist at such point in time as the specified amount of time had elapsed from the previous monitoring pass with respect

5 to a loan record. For example, if Record No. 1 was set up in the loan optimization system on a Tuesday with a weekly monitoring default, the first and each subsequent monitoring pass would be conducted with respect to that particular loan record every Tuesday at a particular point in time. The second record might have been set upon a Thursday, again with a specified or default weekly monitoring frequency, and as such monitoring passes  
10 with respect to that loan record in the loan database (6) would be conducted on Thursdays. In the case of Record No. 3 with a specified daily monitoring frequency, the car loan specified therein would be compared to new products possibly offered in the product database (7) on a daily basis. As has been outlined in further detail above, various other pieces of information or data could be used to calculate or detect trigger  
15 conditions (23), but all of those will also be contemplated within the scope of the present invention.

Upon detection of a trigger condition with respect to a record in the sample data of Table A, the loan comparison module (22) would conduct a monitoring pass through the  
20 product database (7) as represented by sample data in Table B. The loan comparison module (22) would, for example with respect to Record No. 1, calculate or update the outstanding principal and remaining financing costs with respect to the existing loan contained within that particular loan record. In this case the outstanding principal of

5     \$100,000.00 and remaining financing costs of \$42,000.00 have been specified for demonstration purposes. In any event, upon detection of the trigger condition, or in this case the weekly monitoring frequency condition, the particulars of Loan Record No. 1 from Table A would be used by the loan comparison module (22) to conduct a monitoring pass through the product database (7) in the sample data Table B. These calculated  
10    numbers from the existing loan in the loan record such as the outstanding principal, prepayment penalties and remaining financing costs, would be used by the loan comparison module (22) to identify any potential money-saving opportunities. As outlined above in further detail, an identified alternative product or product record in the product database (7) which would result in financial savings to the user compared to the  
15    terms of their existing financing obligation, and met their other user financing preferences (19), would be a validated option (18) of which they would be notified through the remainder of the loan optimization system (1).

With respect to Loan Record No. 1, the user has specified that they do not want any cash  
20    back type of mortgage to be considered. This would eliminate Product Record No. 2 from Table B, since it is a cash back mortgage, and would also eliminate Product Record No. 5 which is a mortgage from another bank offering a cash back provision.

5 Using the remaining principal of \$100,000.00 and whatever term was specified in the product record in question, the loan comparison module (22) would calculate the financing costs for the remaining principal of the existing loan in accordance with the terms of the new product. In the case of Loan Record No. 1, if the refinancing costs to enter the new mortgage through Bank A with the five-year/5.0 term specified in Record  
10 No. 1 of Table B, plus the prepayment penalties of \$7,500.00 for the existing loan, would be less than \$42,000.00 (which is the remaining financing cost for the loan in its existing form), this would potentially be a validated option (18). In this particular case, simply given the interest rates used for comparison purposes, likely the only product record from the product database (7) which would be a compatible product record would be Product  
15 Record No. 1 at the 5.0% interest rate, dependent upon the calculations. It can be seen from the remainder of the sample data the types of comparisons which would then also be compared upon detection of trigger conditions (23) with respect to other loan records (11) from the sample loan database (6) shown in Table A.

20

**Conclusion**

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5 While the invention has been described herein with reference to certain preferred  
embodiments, these embodiments have been presented by way of example only, and not  
to limit the scope of the invention. Accordingly, the scope of the invention should be  
defined only in accordance with the claims that follow. In the following claims, reference  
characters used to designate claim steps are provided for convenience of description only,  
10 and are not intended to imply any particular order for performing the steps.

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**CLAIMS:**

I claim:

1. A loan optimization system for advising users of the existence of advantageous refinancing options with respect to existing borrower loans, each such option being a validated option, said loan optimization system comprising a server computer capable of communicating with users, said server computer containing at least:
    - a) a loan database of loan records, each loan record containing loan particulars for an existing borrower loan;
    - b) a product database of product records, each product record containing product particulars for a prospective loan product of a lender;
    - c) a software loan comparison module operatively engaging said
-

loan database and said product database;

wherein said loan comparison module will detect validated options from said product database with respect to an existing borrower loan of a loan record by conducting at least one monitoring pass of said product database to identify said validated options, and will notify the user of at least one of any validated options detected.

2. The loan optimization system of Claim 1 wherein said loan particulars contain borrower refinancing preferences.
  3. The loan optimization system of Claim 1 wherein upon detection of more than one validated option with respect to a loan record, the user is notified of only the best of said validated options.
  4. The loan optimization system of Claim 1 wherein upon identification of more
-

than one validated option with respect to a loan record, the user is notified of more than one of said validated options.

5. The loan optimization system of Claim 4 wherein said validated options are ranked for notification.
  6. The loan optimization system of Claim 1 wherein a monitoring pass of said product database with respect to a loan record is triggered by detection of a trigger condition.
  7. The loan optimization system of Claim 6 wherein said trigger condition is the passage of a predetermined period of time since the last monitoring pass with respect to said loan record.
  8. The loan optimization system of Claim 6 wherein said trigger condition is
-

determined based on borrower refinancing preferences stored with said loan particulars.

9. The loan optimization system of Claim 8 wherein said borrower refinancing preferences include a monitoring frequency setting, said monitoring frequency setting being used to determine said trigger condition based upon the time of the last monitoring pass with respect to said loan record.
  10. The loan optimization system of Claim 1 wherein said monitoring pass comprises at least, using the loan particulars of said loan record, scanning product records from said product database and using the product particulars thereof to calculate whether refinancing the remainder of the existing borrower loan from said loan record in accordance with the product particulars of said product record would result in a reduction of financing costs in excess of a predetermined savings threshold, in which case a validated option exists.
-

11. The loan optimization system of Claim 10 wherein said loan particulars include borrower refinancing preferences.
  12. The loan optimization system of Claim 11 wherein said borrower refinancing preferences include said predetermined savings threshold.
  13. The loan optimization system of Claim 11 wherein a refinancing option is only a validated option if said refinancing option satisfies said borrower refinancing preferences.
  14. The loan optimization system of Claim 10 wherein said predetermined savings threshold is preset.
  15. The loan optimization system of Claim 10 wherein the predetermined savings threshold is set by the user with respect to a loan record.
-

16. The loan optimization system of Claim 11 wherein said borrower refinancing preferences includes calculation adjustment factors for use by said loan comparison module to alter the standard comparison of said loan record to product records.
  17. The loan optimization system of Claim 1 or 10 further comprising a loan maintenance module.
  18. The loan optimization system of Claim 1 or 10 further comprising a product maintenance module.
  19. The loan optimization system of Claim 1 or 10 wherein said server computer is operatively connected to a computer network rendering it capable of communicating with at least one user computer.
-

20. The loan optimization system of Claim 19 wherein said loan optimization system is a Web site which communicates with users via at least one user browser.
  21. The loan optimization system of Claim 1 or 10 further comprising data entry and display components connected to said server at which users can communicate with said server.
  22. The loan optimization system of Claim 1 or 10 further comprising a historical database within which the details of validated options with respect to particular loan records and monitoring passes are stored.
  23. The loan optimization system of Claim 22 further comprising a reporting module through which users can access historical data from said historical
-

database.

24. The loan optimization system of Claim 1 or 10 wherein said product database contains product records pertaining to prospective loan products of more than one lender.
  25. The loan optimization system of Claim 1 or 10 wherein said loan database contains loan records pertaining to more than one existing borrower loan for a user.
  26. The loan optimization system of Claim 1 or 10 wherein said loan database contains loan records pertaining to existing borrower loans of more than one borrower.
  27. The loan optimization system of Claim 1 or 10 wherein said product database
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contains product records pertaining to more than one type of loan product, and wherein said loan records include a loan type identifier which can be used by said loan comparison module to identify product records of a compatible loan type to the loan type of a particular loan record during execution of a monitoring pass of said product database.

28. A loan optimization method for advising users of the existence of advantageous refinancing options with respect to existing borrower loans, each such option being a validated option, said method comprising the steps of:
- a) Obtaining loan particulars for existing borrower loans from users;
  - b) Obtaining product particulars for prospective loan products;
  - c) With respect to an existing borrower loan, comparing the loan particulars of said existing borrower loan to product
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particulars of said prospective loan products to identify any prospective loan product which, upon refinancing of the remainder of said existing borrower loan, would yield financial savings, said prospective loan product being a validated option; and

- d) Upon detection of any validated options, notifying the user of at least one of said validated options.

29. The loan optimization method of Claim 28 using a server computer capable of communication with users wherein:

- a) loan particulars for existing borrower loans are stored in loan records of a loan database in said server;
  - b) product particulars for prospective loan products are stored in product records of a product database in said server;
-

- c) a software loan comparison module in said server engaging said loans database and said product database will conduct a comparison of loan particulars of loan records to product records from the product database to identify any validated options; and
  - d) wherein the user will be notified by the server of the existence of at least one of said validated options when any validated options are detected with respect to an existing borrower loan.
30. The loan optimization method of Claim 29 wherein said loan particulars include borrower refinancing preferences.
31. The loan optimization method of Claim 30 wherein a refinancing option is only a validated option if said refinancing option satisfies said borrower refinancing preferences.
-

32. The loan optimization method of Claim 29 wherein, with respect to a loan record, said loan comparison module will identify any validated options by conducting at least one monitoring pass through said product database.
  33. The loan optimization method of Claim 32 wherein said monitoring pass comprises at least, using the loan particulars of said loan record, scanning product records from said product database and using the product particulars thereof to calculate whether refinancing the remainder of the existing borrower loan from said loan record in accordance with the product particulars of said product record would result in a reduction of financing costs in excess of a predetermined savings threshold, in which case a validated option exists.
  34. The loan optimization method of Claim 33 wherein said predetermined savings threshold is preset.
-

35. The loan optimization method of Claim 33 wherein the predetermined savings threshold is set by the user with respect to said loan record.
  36. The loan optimization method of Claim 32 wherein said loan comparison module will conduct said monitoring pass upon detection of a trigger condition with respect to said loan record.
  37. The loan optimization method of Claim 36 wherein said trigger condition is the passage of a predetermined period of time since the last monitoring pass with respect to said loan record.
  38. The loan optimization method of Claim 29 wherein upon detection of more than one validated option with respect to a loan record, the user is notified of only the best of said validated options.
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39. The loan optimization method of Claim 28 wherein upon identification of more than one validated option with respect to an existing loan record, the user is notified of more than one of said validated options.
  40. The loan optimization method of Claim 39 wherein said validated options are ranked for notification.
  41. The loan optimization method of Claim 33 wherein said loan particulars include borrower refinancing preferences.
  42. The loan optimization method of Claim 41 wherein said trigger condition is based on said borrower refinancing preferences.
  43. The loan optimization method of Claim 42 wherein said borrower refinancing
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preferences include a monitoring frequency setting, said monitoring frequency setting being used to determine the existence of a trigger condition.

44. The loan optimization method of Claim 41 wherein said borrower refinancing preferences include said predetermined savings threshold.
  45. The loan optimization method of Claim 41 wherein said borrower refinancing preferences includes calculation adjustment factors for use by said loan comparison module.
  46. The loan optimization method of Claim 29 or 33 wherein said server is a web server and users communicate with said server via at least one user browser.
  47. The loan optimization method of Claim 29 wherein said server also contains a software loan maintenance module.
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48. The loan optimization method of Claim 29 wherein said server also includes a software product maintenance module.
  49. The loan optimization method of Claim 29 further comprising recording the details of any validated options with respect to particular loan records in a historical database.
  50. The loan optimization method of Claim 29 or 33 wherein said product database contains product records pertaining to prospective loan products of more than one lender.
  51. The loan optimization method of Claim 29 or 33 wherein said loan database contains loan records pertaining to more than one existing borrower loan for a user.
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52. The loan optimization method of Claim 29 or 33 wherein said loan database contains loan records pertaining to existing borrower loans of more than one borrower.
  53. The loan optimization method of Claim 29 or 33 wherein said product database contains product records pertaining to more than one type of loan product, and wherein said loan records include a loan type identifier which can be used by said loan comparison module to identify product records of a compatible loan type to the loan type of a particular loan record during execution of a monitoring pass of said product database.
  54. A loan optimization computer program capable of controlling a server computer, for use in advising users of the existence of advantageous refinancing options with respect to existing borrower loans, each such option being a validated option, which computer program when executed by said
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server computer will perform the functions of:

- a) accepting the input of loan particulars of existing borrower loans to loan records in a loan database;
  - b) accepting product particulars of prospective loan products into product records in a product database;
  - c) with respect to a loan record, conducting at least one monitoring pass through said product database to identify any prospective loan products which would, if the remainder of the existing borrower loan of the loan record were refinanced in accordance with the product particulars of said product record, yield financial savings, any such refinancing option being a validated option; and
  - d) upon detection of any validated options, notifying the user of at least one of said validated options.
-

server computer will perform the functions of:

- a) accepting the input of loan particulars of existing borrower loans to loan records in a loan database;
  - b) accepting product particulars of prospective loan products into product records in a product database;
  - c) with respect to a loan record, conducting at least one monitoring pass through said product database to identify any prospective loan products which would, if the remainder of the existing borrower loan of the loan record were refinanced in accordance with the product particulars of said product record, yield financial savings, any such refinancing option being a validated option; and
  - d) upon detection of any validated options, notifying the user of at least one of said validated options.
-

55. The loan optimization computer program of Claim 54 wherein upon detection of more than one validated option with respect to a loan record, the user is notified of only the best of said validated options.
  56. The loan optimization computer program of Claim 54 wherein upon identification of more than one validated option with respect to a loan record, the user is notified of more than one of said validated options.
  57. The loan optimization computer program of Claim 56 wherein said validated options are ranked for notification.
  58. The loan optimization computer program of Claim 54 wherein said loan particulars include borrower refinancing preferences.
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59. The loan optimization computer program of Claim 54 wherein a monitoring pass of said product database with respect to a loan record is triggered by detection of a trigger condition.
  60. The loan optimization computer program of Claim 59 wherein said trigger condition is the passage of a predetermined period of time since the last monitoring pass with respect to said loan record.
  61. The loan optimization computer program of Claim 59 wherein said trigger condition is determined based upon borrower refinancing preferences stored with said loan particulars.
  62. The loan optimization computer program of Claim 61 wherein said borrower refinancing preferences include a monitoring frequency setting, said monitoring frequency setting being used to determine said trigger condition based upon the time of the last monitoring pass with respect to said loan
-

record.

63. The loan optimization computer program of Claim 54 wherein said monitoring pass comprises at least, using the loan particulars of said loan record, scanning product records from said product database and using the product particulars thereof to calculate whether refinancing the remainder of the existing borrower loan from said loan record in accordance with the product particulars of said product record will result in a reduction of the financing costs in excess of a predetermined savings threshold, in which case a validated option exists.
  64. The loan optimization computer program of Claim 63 wherein said predetermined savings threshold is specified in said loan record by the user.
  65. The loan optimization computer program of Claim 63 wherein said loan particulars include borrower refinancing preferences.
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66. The loan optimization computer program of Claim 65 wherein a refinancing option is only a validated option if said refinancing option satisfies said borrower refinancing preferences.
  67. The loan optimization computer program of Claim 63 wherein said predetermined savings threshold is preset.
  68. The loan optimization computer program of Claim 65 wherein said borrower refinancing preferences includes calculation adjustment factors for use by said computer program to alter the standard comparison of said loan records to said product records.
  69. The loan optimization computer program of Claim 54 or 63 further comprising a historical database within which the details of validated options
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with respect to particular loan records and monitoring passes are stored.

70. The loan optimization computer program of Claim 54 or 63 wherein said product database contains product records pertaining to prospective loan products of more than one lender.
  71. The loan optimization computer program of Claim 54 or 63 wherein said loan database contains loan records pertaining to more than one existing borrower loan for a user.
  72. The loan optimization computer program of Claim 54 or 63 wherein said loan database contains loan records pertaining to the existing borrower loans of more than one borrower.
  73. The loan optimization computer program of Claim 54 or 63 wherein said
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product database contains product records pertaining to more than one type of loan product, and wherein said loan records include a loan type identifier which can be used by said computer program to identify product records of a compatible loan type to the loan type of a particular product record during execution of a monitoring pass of said product database.

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FIGURE 1:

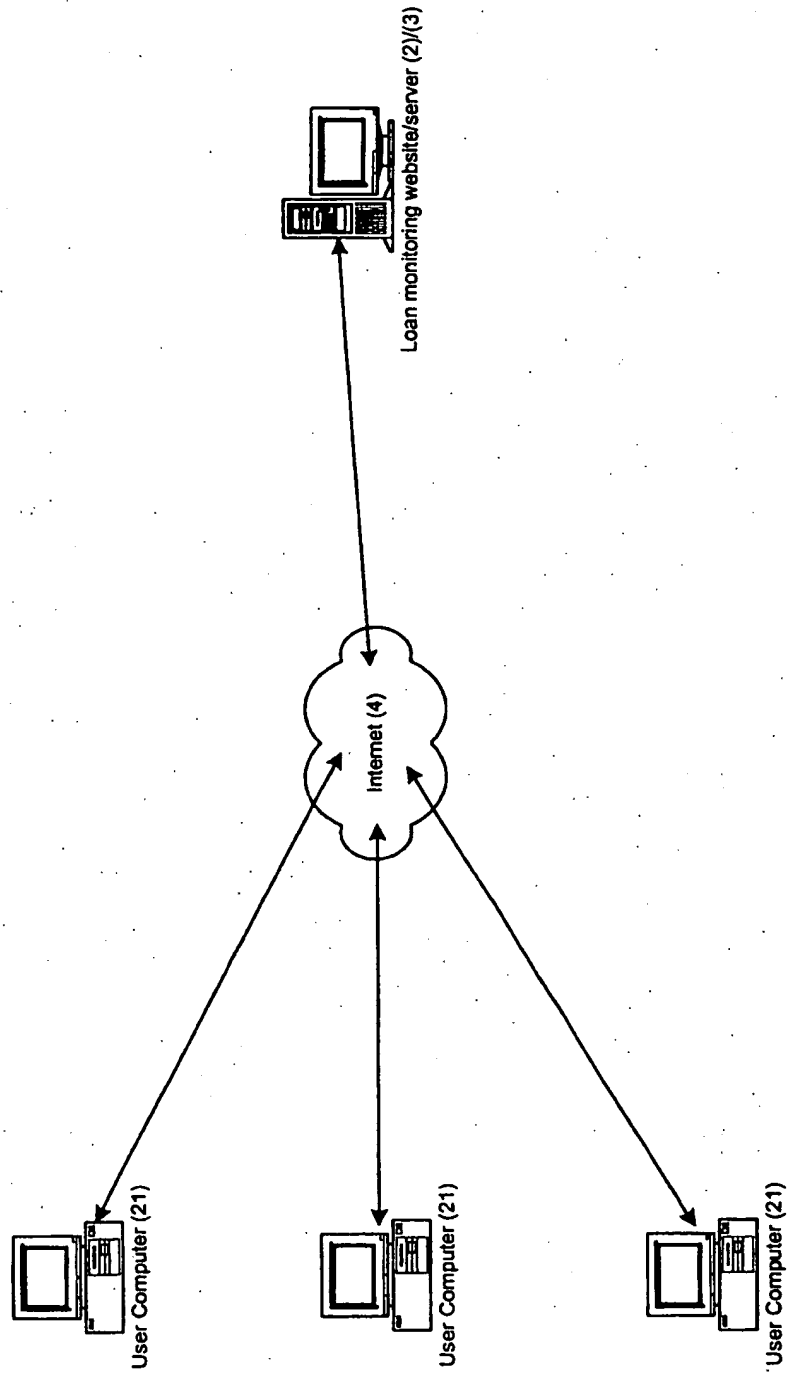


FIGURE 2:

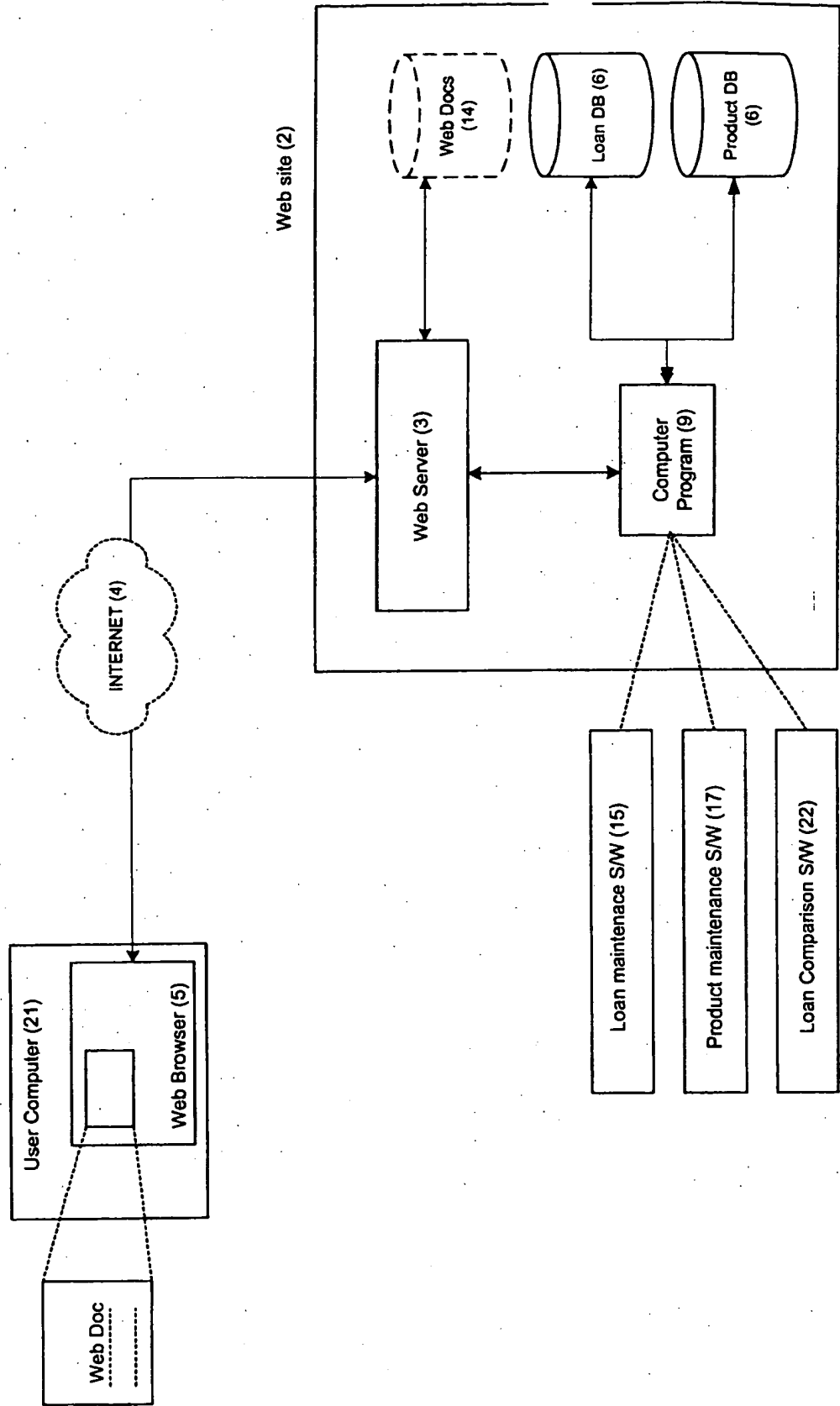
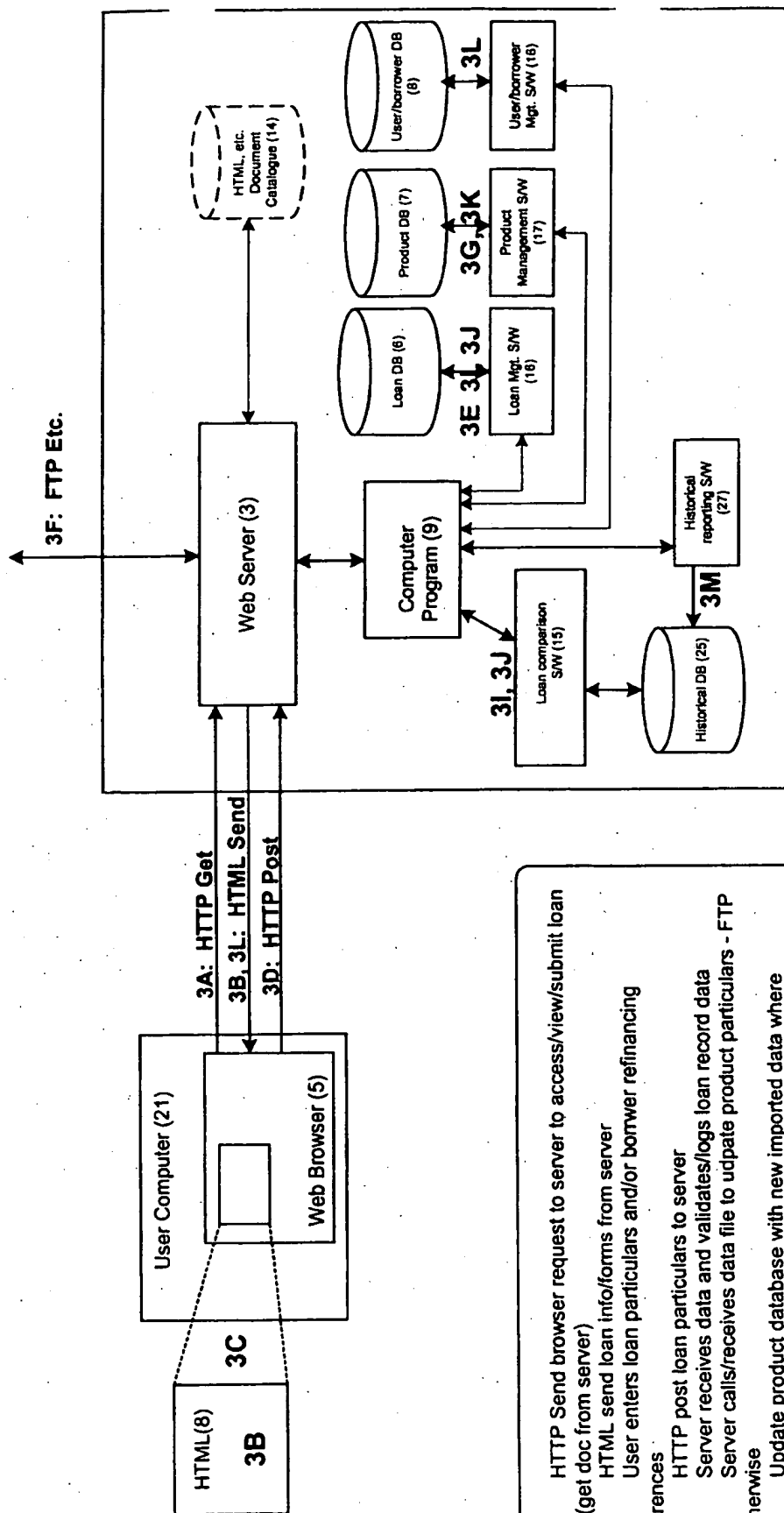


FIGURE 3:



- 3A: HTTP Send browser request to server to access/view/submit loan data (get doc from server)
- 3B: HTML send loan info/forms from server
- 3C: User enters loan particulars and/or borrower refinancing preferences
- 3D: HTTP post loan particulars to server
- 3E: Server receives data and validates/logs loan record data
- 3F: Server calls/receives data file to update product particulars - FTP or otherwise
- 3G: Update product database with new imported data where appropriate
- 3I: Monitor loan DB for trigger condition
- 3J: Calculations re remaining financing costs for existing borrower loan
- 3K: Monitoring pass of product DB
- 3L: Notify user if validated option detected
- 3M: Store details of any validated options to historical DB

FIGURE 4

**Preferences:**

Notification: Day   
Minimum Savings:

**Mortgage:**

Name:   
Lender: Bank Montreal Mtg. Corp.   
Amortization:   
\* Type: Closed Fixed Mortgage   
Annual Interest Rate:   
\* Compounding: Semi-Annual   
Principal:   
Payment:   
First Payment:   
Payment Schedule: Annual   
\* Days per Year: 360   
Term: 6 Month   
\* Cashback Discount:

**Buyout:**

\* Buydown before Payout:   
\* Buydown before Renewal:   
\* Payout Type: Automatic   
\* Administration Fee:

**Renewal:**

\* Renewal Type: Same Lender   
Payment Option: Fastest Payout   
Annual Discount Rate:   
\* Payment Schedule: Annual   
Term: 6 Month

\* Experts Only

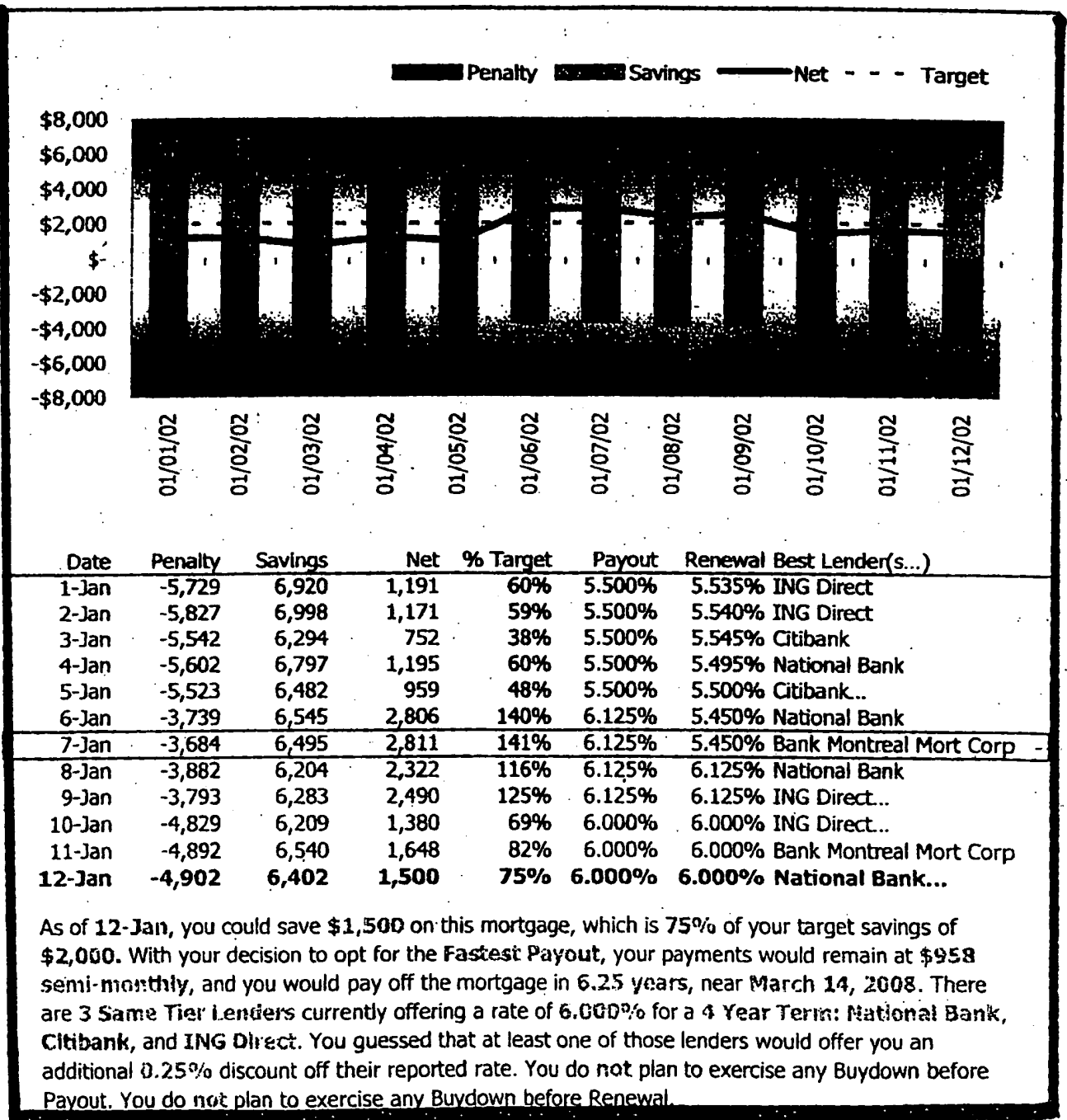
FIGURE 5

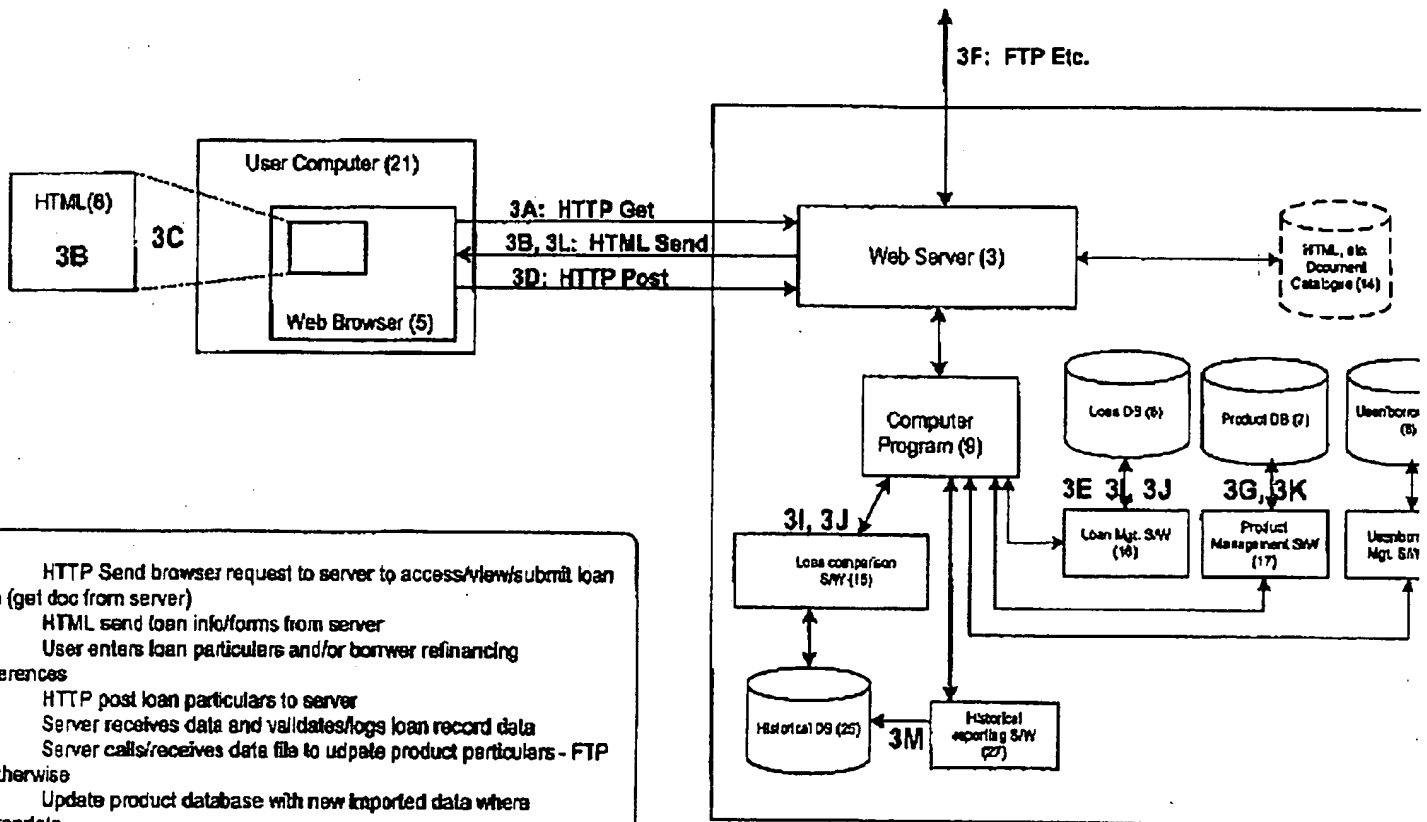
jack.dawson@canadarealestate.com

Tom and Louise Jacobs, 58 Fernwood Bay Sarnia

Target=\$2,000 BBP=\$0 BBR=\$0 Discount=0.25%

2002/01/12





- 3A: HTTP Send browser request to server to access/view/submit loan data (get doc from server)
- 3B: HTML send loan info/forms from server
- 3C: User enters loan particulars and/or borrower refinancing preferences
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- 3J: Calculations re remaining financing costs for existing borrower loan
- 3K: Monitoring pass of product DB
- 3L: Notify user if validated option detected
- 3M: Store details of any validated options to historical DB